

NEW TRICHOPTERA FROM ALABAMA

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Abstract.—Five new species of Trichoptera, *Rhyacophila carolae* (Rhyacophilidae), *Protophila cahabensis* (Glossosomatidae), *Hydrophila micropotamis* and *Ochrotrichia weoka* (Hydrophiliidae), and *Ceraclea alabamiae* (Leptoceridae) are described and illustrated.

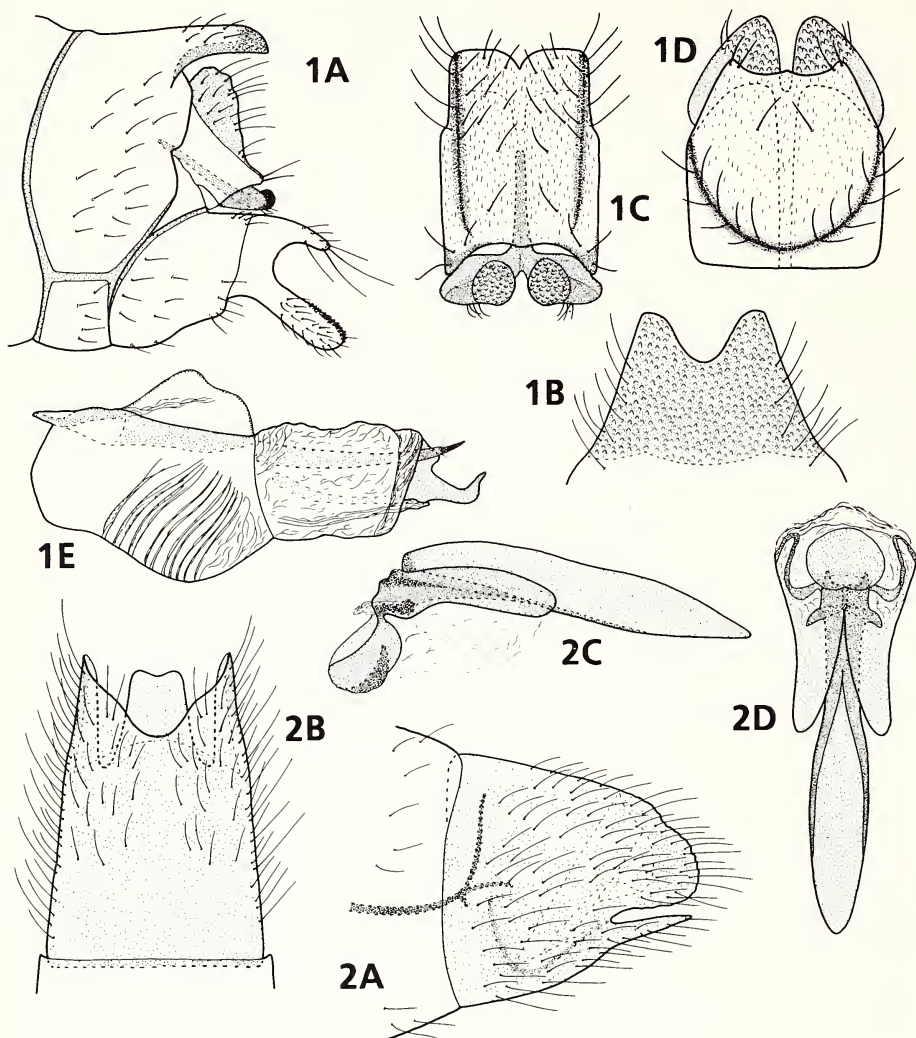
In the course of a continuing survey of the caddisflies of Alabama, five undescribed species were collected using UV light traps. These new species, one in each of the genera *Rhyacophila*, *Protophila*, *Hydrophila*, *Ochrotrichia* and *Ceraclea*, are described and diagnosed herein. Morphological terminology for *Rhyacophila* and *Protophila* follows that of Schmid (1980); *Hydrophila* and *Ochrotrichia* that of Marshall (1979); and *Ceraclea* that of Morse (1975). Specimen length was measured from the tip of the head to the end of the wings. With more than one specimen, this length is given as a range for the species. Type material will be deposited at the National Museum of Natural History, Smithsonian Institution (NMNH), Illinois Natural History Survey (INHS), Florida State Collection of Arthropods (FSCA), University of Alabama Insect Collection (UA), and the personal collection of the author (SCH).

***Rhyacophila carolae*, new species**

Figs. 1, 2

Diagnosis. This species, a member of the *R. invaria* species group of Schmid (1970), is most similar to *R. kondratieffi* Parker and *R. shenandoahensis* Flint. These species have in common an elongate anal sclerite with small apical lobes and similarly shaped inferior appendages, but *R. carolae* is easily recognized by the short, emarginate apical lobe of segment IX and the lack of a concave segment X. As with females of the *invaria* group, the new species shares the posterodorsal incision and ventral median process of segment VIII and simple vaginal sclerites. With this new species, 11 *Rhyacophila* have been identified from Alabama.

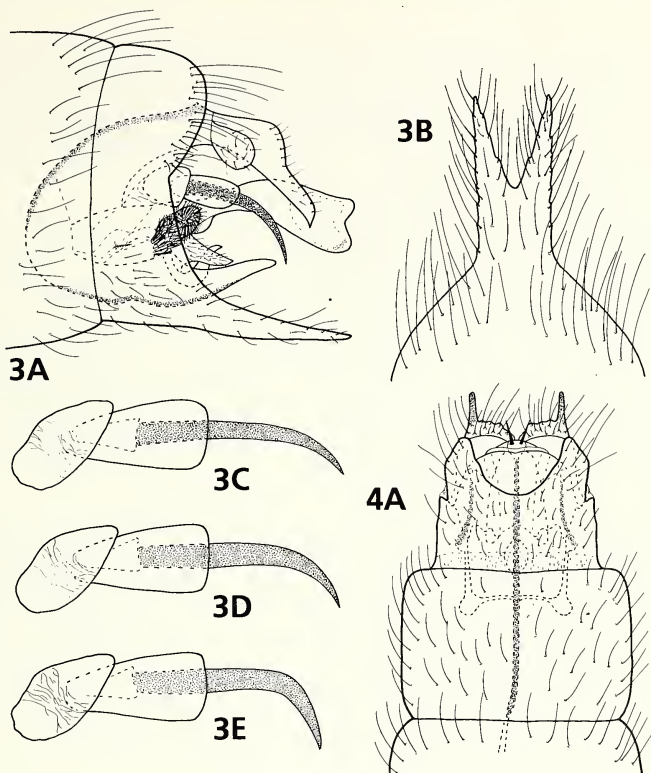
Description. Male: Length 7.8 mm. Head and thorax black, legs grayish. Wings black with scattered patches of yellow hair on forewings giving mottled appearance. Abdominal segment VII with small ventromesal projection. Segment IX narrow ventrally, thickened at line of articulation with inferior appendages; dorsal apical lobe short, barely extending beyond segment X, posterior margin with mesal notch. Segment X with posterior margins straight in lateral view; in caudal view rectangular with elongate setae at margins and short stout setae on posterior surface. Anal sclerite elongate in lateral view, narrow basal portion extending into posterior of segment IX, distal portion enlarged with apical lobes small and rounded, triangular laterally; in dorsal view, apical lobes narrowly separated and triangular in shape. Inferior appendages with ventral lobe narrow and rounded apically, dense patch of peg-like setae on dorsal surface; dorsal lobe approximately half length that of ventral lobe,



Figs. 1, 2. *Rhyacophila carolae*, genitalia. 1. Male genitalia: A, lateral; B, apical lobe of segment IX, dorsal; C, segment X and anal sclerites, caudal; D, segment X and anal sclerites, dorsal; E, phallic apparatus, lateral. 2. Female genitalia: A, segment VIII, lateral; B, segment VIII, dorsal; C, vaginal sclerites, lateral; D, vaginal sclerites, ventral.

slightly tapering to rounded apex, bearing several long setae. Phallic apparatus large with spiniform paramere, aedeagus lightly sclerotized and upturned at apex.

Female: Length 8.7 mm. Overall appearance similar to male, with forewings less mottled. Abdominal segment VIII in lateral view with a narrow, posteroventral incision; dorsum with broad emargination posteriorly; venter with mesal projection, slightly emarginate on posterior margin. Vaginal sclerites brown; terminal sclerite elongate, in lateral view anterior portion generally rectangular with posterior portion



Figs. 3, 4. *Protoptila cahabensis*, genitalia. 3. Male genitalia: A, lateral; B, sternum VIII, ventral. C, D, E, variation in rods of preanal appendages, lateral. 4. Female genitalia: A, ventral.

tapering to an acute apex, in ventral view oblong posteriorly with apical portion rectangular; lateral sclerites about half length of terminal sclerite, in lateral view narrow and rounded posteriorly, anteriorly constricted at attachment to rounded anterior sclerite; in ventral view, lateral sclerites narrowly separated posteriorly, triangular in shape with outer margins concave; anterior sclerite round in ventral and lateral views.

Type material. Holotype: Male, Alabama, Lawrence County, tributary to Bee Branch, below falls, T8S, R9W, S26, Bankhead National Forest, 21 May 1988, C. M. and O. S. Flint, Jr. (NMNH). Paratype: Alabama, same as above, 1♀ (USNM).

Etymology. This species is named in honor of Mrs. Carol Flint, who along with her husband collected the type series and has contributed much through her collecting efforts to our knowledge of Trichoptera.

***Protoptila cahabensis*, new species**

Figs. 3, 4

Diagnosis. In overall appearance, this species resembles both *P. palina* Ross and *P. lega* Ross. Males of the new species are separated from both *P. palina* and *P. lega*

by the ventrally curving rods of the preanal appendages and the truncated apex of the phallus. Females of *P. cahabensis* are separated from *P. palina* and *P. lega* by the elongate lateral lobes of sternite VIII and the lack of internal sclerotized plates. In addition to this new species, which is restricted in its distribution to a small section of the Cahaba River, only three other *Protoptila* have been collected in Alabama: *P. maculata* (Hagen) in north Alabama, *P. georgiana* Denning in a portion of the Alabama Piedmont and the widespread *P. palina*.

Description. Male: Length 3.0–4.5 mm. In alcohol, head and thorax reddish brown dorsally. Abdomen, legs, palpi and antennae yellow brown. Front wings brown with thin white transverse band at midlength, hind wings uniformly light brown. Abdominal sternum VIII long, reaching to tip of phallus; in ventral view with deep mesal incision apically. Sternite IX narrow, extending about half length of preceding segment. Tenth tergite divided into lateral arms, each narrowed and beaklike apically. Preanal appendages with long, ventrally curving rods, extending nearly length of segment X, extent of bending variable from slight to abrupt. Phallus with apex nearly truncate, ventral lip rounded, basally bearing a setose lobe and sinuate ventral projection.

Female: Length 3.5–4.5 mm. Overall appearance and coloration similar to male. Abdominal sternite VIII deeply and broadly incised mesally, lateral lobes elongate. Vaginal apparatus rectangular, sclerotized laterally, lacking mesal sclerotization.

Type material. Holotype: Male, Alabama, St. Clair County, Cahaba River at County Highway 10, near Whites Chapel, T16S, R1E, S28, 25 August 1981, S.C. Harris (NMNH). Paratypes: Alabama, same as above, but 24 May 1981, 3♂♂ (SCH); same as above, but 13 August 1981, 11♂♂ (NMNH, INHS, FSCA, UA); same as above, but 9 October 1982, 46♂♂ 9♀♀ (NMNH, INHS, FSCA, UA, SCH).

Etymology. Named for the Cahaba River.

***Hydroptila micropotamis*, new species**

Fig. 5

Diagnosis. A member of the *H. waubesiana* group of Marshall (1979), this species resembles *H. gunda* Milne in the lateral elongation of segment VIII, and both *H. ouachita* Holzenthal and Kelley and *H. oakmulgeensis* Harris in the general configuration of segment X and the inferior appendages. These characters taken in combination render the species distinct. The genus *Hydroptila* is represented by 47 species in Alabama (Harris, 1986).

Description. Male: Length 2.0–2.6 mm. Antennae 27-segmented. Brown in alcohol. Abdominal sternum VII with short, apicomeres process. Segment VIII with rounded mesal excisions both dorsally and ventrally; in lateral view narrowing distally to rounded apex. Segment IX short and completely retracted within VIII; dorsally reduced to a narrow bridge. Segment X in dorsal view narrowed basally, forked posteriorly, each arm with rounded apex; in lateral view narrow over entire length, upturned apically and acute. Subgenital plate short; in ventral view generally triangular, narrowing posteriorly, bearing two setae at apex. Inferior appendages rectangular in dorsal and ventral views with mesal incision apically; in lateral view narrow over length, with 3-pronged apex. Phallus tubular, widest basally, gradually tapering to narrow apex; thin titillator at midlength encircling shaft.

Type material. Holotype: Male, Alabama, De Kalb County, Little River at Canyon

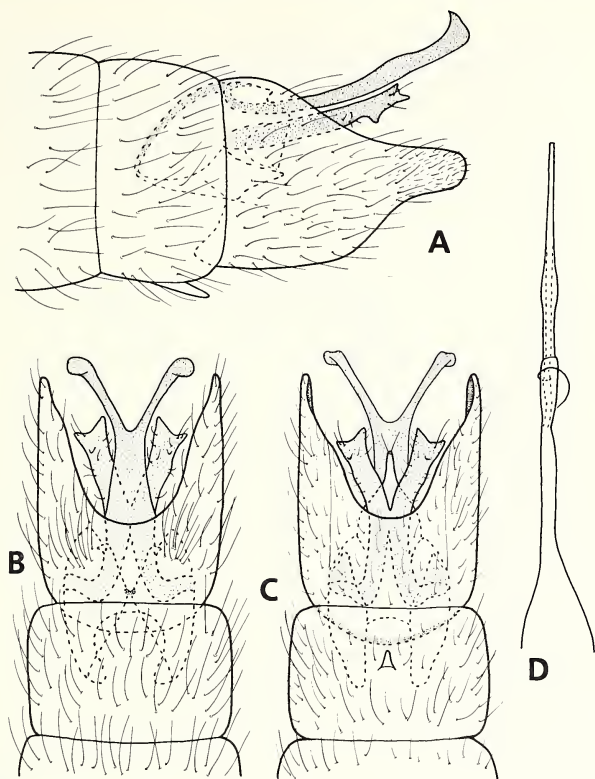


Fig. 5. *Hydropsyche micropotamis*, male genitalia. A, lateral; B, dorsal; C, ventral; D, phallus.

Park, 4 miles E Dog Town, T8S, R9E, S10, 22 June 1987, S.C. Harris (NMNH). Paratypes: Alabama, same as above, 170♂♂ (NMNH, INHS, FSCA, UA, SCH), De Kalb County, Little River at mouth of Bear Creek, 4 miles E Dog Town, 22 June 1987, 38♂♂, S.C. Harris (SCH).

Etymology. From the Greek, little river.

***Ochrotrichia weoka*, new species**

Fig. 6

Diagnosis. In overall appearance, this species resembles *O. xena* Ross. It differs primarily in the trapezoidal shaped inferior appendages and the dorsolateral bulbous appearance of segment X. This species brings to 11 the total number of *Ochrotrichia* collected in Alabama (Harris, 1986).

Description. Male: Length 2.5 mm. Antennae 27-segmented. Brown in alcohol. Abdominal segment VIII square. Segment IX generally square laterally; dorsum deeply incised; sternum rounded anteriorly, slightly incised posterolaterally. Segment X narrow in lateral view, distally produced into rounded lobe, heavily sclerotized dorsally; in dorsal view parallel-sided basally, narrowing to rounded apex, more

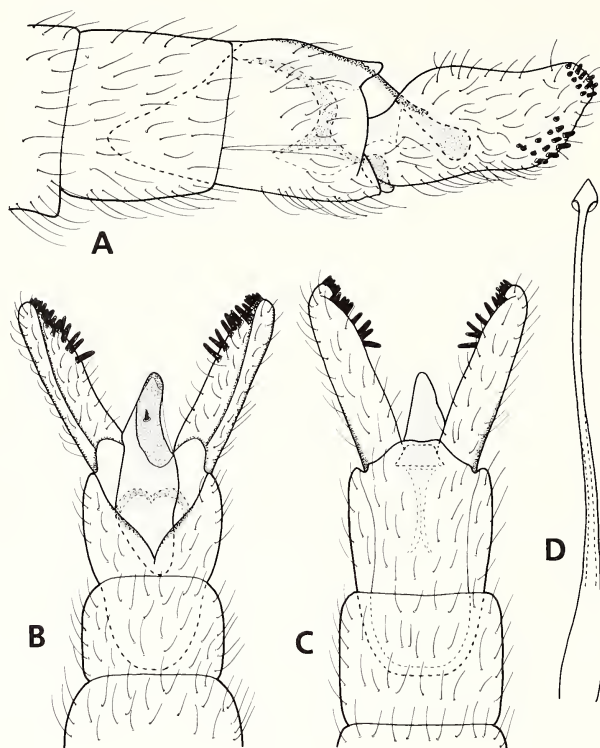


Fig. 6. *Ochrotrichia weoka*, male genitalia. A, lateral; B, dorsal; C, ventral; D, phallus.

heavily sclerotized distally, with heavy peg-like seta subapically. Inferior appendages in lateral view trapezoidal in shape, with peg-like setae dorsally and ventrally at apex; in ventral view peg-like setae distally at mesal margin. Phallus simple, tubular, triangular at apex.

Type material. Holotype: Male, Alabama, Elmore County, Fisher Creek on unmarked county road, 3.5 miles southwest Weoka, T20N, R18E, S36, 29 April 1987, S. C. Harris and P. E. O'Neil (NMNH).

Etymology. Named for the Alabama town of Weoka, located near the type locality.

***Ceraclea alabamae*, new species**

Fig. 7

Diagnosis. This species is in the *C. fulva* group of Morse (1975) with similarities to both *C. transversa* (Hagen) and *C. latahensis* (Smith). In common with these species are the long phallic parameres and long mesal spine on the inner surface of the inferior appendage. *Ceraclea alabamae* is easily distinguished by the acute, up-turned apex of the tenth tergum. Thirteen species of *Ceraclea* have been identified from Alabama.

Description. Male: Length 6.0–9.0 mm. In alcohol, head, thorax and palps reddish brown. Legs and antennae pale brown. Wings uniformly light brown, with no dis-

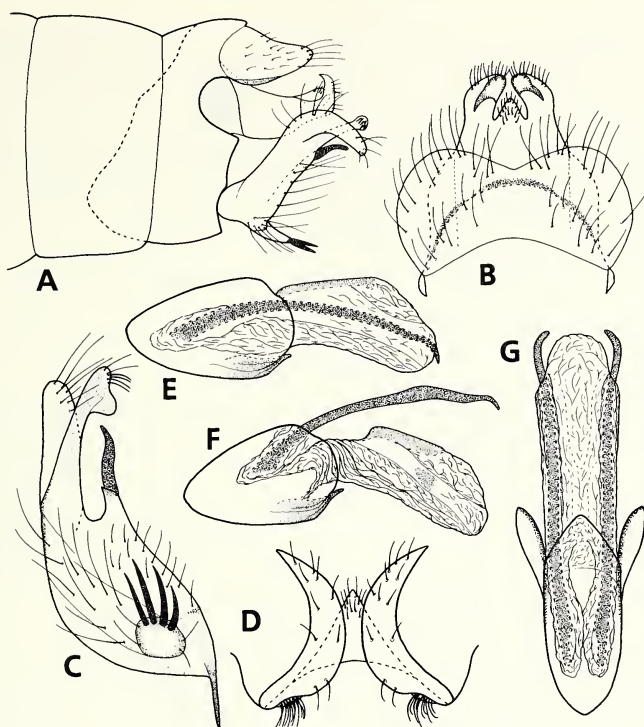


Fig. 7. *Ceraclea alabamiae*, male genitalia. A, lateral; B, segments IX and X, dorsal; C, inferior appendage, caudal; D, apex segment X, caudal; E, phallus intact, lateral; F, phallus distended, lateral; G, phallus intact, ventral.

cernable pattern. Ninth abdominal segment generally triangular, extending anteriorly to middle of segment VIII. Segment X in dorsal view divided into three lobes distally, lateral lobes with acute, sclerotized dorsal projections, mesal lobe about half length of lateral lobes and rounded apically; in caudal view lateral lobes crescent shaped, with apices bent outward; in lateral view apex of segment X sharply upturned to acute point. Inferior appendages in lateral view with basal projection tipped with long, thick spines, dorsal lobe curving ventrad; harpago extending posteriorly beyond dorsal lobe; in caudal view mesal ridge with long spine, originating from short, truncate, apical projection. Phallus with lateral parameres nearly as long as entire phallic apparatus, extending slightly beyond apex; in ventral view parameres curving mesad at apex.

Type material. Holotype: Male, Alabama, De Kalb County, West Fork of Little River at DeSoto State Park, T6S, R10E, S20, 22 June 1981, S. C. Harris (NMNH). Paratypes: Alabama, same as above, 79♂♂ (NMNH, INHS, FSCA, UA, SCH), De Kalb County, Little River at Canyon Park, 4 miles E Dog Town, 22 June 1987, 81♂♂, S. C. Harris (NMNH, INHS, UA), De Kalb County, Little River at mouth of Bear Creek, 4 miles E Dog Town, 22 June 1987, 87♂♂, S. C. Harris (FSCA, UA, SCH).

Etymology. Named for its occurrence in Alabama.

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